
* INCH-POUND *

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SUPERSEDING
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FEDERAL SPECIFICATION

DISPENSERS, BEVERAGE, MECHANICALLY REFRIGERATED

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 Scope. This specification covers mechanically refrigerated, counter mounted, noncarbonated beverage dispensers having rigid, transparent, plastic containers to afford a visual indication of the beverage being dispensed from the unit.

1.2 Classification. The beverage dispensers shall be of the following types, styles, sizes, and electrical ratings, as specified (see 6.2).

Types I - Dispenser with agitation system plus overhead, spray type aeration system (for syrup drinks and other non-foaming beverages)

Types II - Dispenser with agitation system but without aeration system (for pulpy fruit juices and other beverages not suitable for aeration)

Style A - Single bowl

Size 4 - Capacity of 3 to 5 gallons (11.4 to 18.9 liters (L)), inclusive

Size 7 - Capacity of 6 to 8 gallons (22.7 to 30.3 L), inclusive

Size 13 - Capacity of 12 to 15 gallons (45.4 to 56.8 L), inclusive

Beneficial comments (recommendations, additions, deletions) and any pertinent
*data which may be of use in improving this document should be addressed to: *
*Commanding Officer (Code 156), Naval Construction Battalion Center, *
*1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization *
*Document Improvement Proposal (DD Form 1426) appearing at the end of this *
*document or by letter. *

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Style B - Twin bowl

- Size 7 - Capacity of 3 to 6 gallons (11.4 to 22.7 L) per bowl, 6 to 12 gallons (22.7 to 45.4 L) total capacity, inclusive
- Size 11 - Capacity of 5 to 6 gallons (18.9 to 22.7 L) per bowl, 10 to 12 gallons (37.9 to 45.4 L) total capacity, inclusive

Style C - Triple bowl

- Size 11 - Capacity of 3 to 4 gallons (11.4 to 15.1 L) per bowl, 9 to 12 gallons (34.1 to 45.4 L) total capacity, inclusive
- Size 17 - Capacity of 5 to 6 gallons (18.9 to 22.7 L) per bowl, 15 to 18 gallons (56.8 to 68.1 L) total capacity, inclusive

Electrical rating

- 115/1/60 - Nominal 115-volt, single-phase, 60-hertz current
- 220/1/50 - Nominal 220-volt, single-phase, 50-hertz current

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Federal Specification

- PPP-B-636 - Boxes, Shipping, Fiberboard

Military Specifications

- MIL-P-116 - Preservation, Methods of
- MIL-V-173 - Varnish, Moisture and Fungus Resistant (For Treatment of Communications, Electronics and Associated Equipment)

Military Standards

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-130 - Identification Marking of U.S. Military Property
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-167/1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited)
- MIL-STD-461 - Control of Electromagnetic Interference Emissions and Susceptibility, Requirements for the
- MIL-STD-462 - Electromagnetic Interference Characteristics, Measurement of

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- MIL-STD-1472 - Human Engineering Design Criteria for Military Systems, Equipment and Facilities
- MIL-STD-2073-1B - DoD Materiel Procedures for Development and Application of Packaging Requirements (Part 1 of 2 Parts)

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified (see 6.2), the issues are those cited in the solicitation.

ASTM:

- ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
- ASTM A 176 - Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip
- ASTM D 3951 - Commercial Packaging

(Application for copies should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103.)

National Electrical Manufacturers Association (NEMA):

- NEMA WD 1 - General Requirements for Wiring Devices

(Application for copies should be addressed to the National Electrical Manufacturers Association, 2101 L Street, N.W., Washington, DC 20037.)

NSF International (NSF):

- NSF International Standard 18 - Manual Food & Beverage Dispensing Equipment
- NSF International Annual Listing of - Food Service Equipment and Related Products, Components and Materials

(Application for copies should be addressed to the NSF International, P.O. Box 130140, Ann Arbor, MI 48113-0140)

Underwriters Laboratories, Inc. (UL):

- UL 471 - UL Standard for Safety Commercial Refrigerators and Freezers

(Application for copies should be addressed to the Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

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2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Standard commercial product. The noncarbonated beverage dispensers shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the dispensers being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.2 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials shall withstand normal wear, penetration of vermin, corrosive action of refrigerants, foods, cleaning and sanitizing compounds, and other elements in the intended end use environment. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.3 Description. The beverage dispensers shall consist essentially of a base assembly containing a complete refrigeration system and supporting a rigid, clear plastic, bowl-type beverage container(s) with cover. Each dispenser shall be equipped with an electrically-powered beverage agitation system, a dispensing faucet, and the controls and appurtenances specified herein. Style A units shall be equipped with one bowl and one or more dispensing faucets, at the option of the supplier. Unless otherwise specified (see 6.2), style A, size 13 units shall be equipped with two or more dispensing faucets. Style B units shall be equipped with two bowls or compartments each with an individual dispensing faucet and agitation system. Style C units shall be equipped with three bowls or compartments each with an individual dispenser faucet and agitation system. The numerical designations used herein to identify dispenser sizes shall be interpreted as the nominal capacity. The actual capacity for a particular size shall be equal to the nominal capacity or, at the option of the manufacturer, to any other capacity within the applicable range of capacities specified under 1.2 herein.

3.4 First article. When specified (see 6.2), the contractor shall furnish one dispenser of the classification specified for first article inspection and approval (see 4.2.1 and 6.3).

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3.5 Standards compliance. The dispensers shall meet the requirements of UL 471 and NSF International Standard 18.

3.5.1 Standards applicability. Details for equipment construction, design, and performance covered by this specification shall be supplementary to the requirements of the standards cited in 3.5, and compliance with and approval under the UL or NSF International Standard shall not relieve the supplier of the responsibility for meeting the requirements of this specification.

3.6 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

3.7 Performance. The dispensers shall be designed for the refrigeration and dispensing of noncarbonated beverages. The dispensers shall be equipped as specified in 3.8.3 to maintain the stored beverage in a constant state of motion or agitation to prevent settlement of beverage constituents. The refrigeration system shall be capable of automatically maintaining the beverage within the limits of 33.5 to 40 degrees Fahrenheit (oF) (0.8 to 4.4 degrees Celsius (oC)) inclusive when the dispenser is filled to the manufacturer's rated capacity and is operating in an ambient temperature of 90oF (32.2oC), as specified in 4.5.2.1. The dispenser shall be capable of reducing the temperature of the rated capacity of beverage from 72 to 40oF (22.2 to 4.4oC) in not more than the applicable time specified in table I when operating in an ambient temperature of 72oF (22.2oC), as specified in 4.5.2.2. The dispenser shall, in addition, operate satisfactorily in an ambient temperature of 100oF (37.7oC), and 80 percent relative humidity for extended periods without overloading of the hermetic compressor-condenser unit.

TABLE I. Refrigeration system requirements.

* Dispenser * size	* Compressor motor * rated horsepower * (kilowatts) * (minimum)	* Refrigeration capacity, * Btu per hour (watts) * (minimum)		* Pull-down time, * hours * (maximum)	
		* 60-hertz	* 50-hertz	* 60-hertz	* 50-hertz
* 4	* 1/6 (0.12kW)	* 1250 (366W)	* 1040 (305W)	* 2.0	* 2.4
* 7	* 1/6 (0.12kW)	* 1250 (366W)	* 1040 (305W)	* 2.0	* 2.6
* 11	* 1/5 (0.15kW)	* 1600 (469W)	* 1330 (390W)	* 2.5	* 3.0
* 13	* 1/4 (0.19kW)	* 2800 (820W)	* 2330 (683W)	* 3.0	* 3.6

NOTES: (1) Refrigeration capacity based on 90oF (32.2oC) ambient temperature, 80oF (26.6oC) suction return gas, and 40oF (4.4oC) evaporator refrigerant temperature.

(2) Pull-down time based on 72oF (22.2oC) ambient temperature, 50 percent relative humidity, 72oF (22.2oC) initial beverage temperature, and 40oF (4.4oC) final beverage temperature.

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3.8 Design and construction. The dispensers shall be designed and constructed for counter mounting. The distance from the front edge of the dispenser base (exclusive of drip tray) to the rearmost extension of the dispenser shall not exceed 23 inches (584 millimeters (mm)). The height of the dispenser, measured from the counter to the top of the cover, shall not exceed 30 inches (762 mm), except when the weight of a style A, size 13 or a style B, size 11 or a style C, size 17 precludes its classification as movable equipment and the dispensers therefore must be leg-mounted to meet NSF International cleanability requirements. Counter units shall be sealed to the counter or mounted on legs of sufficient height to provide a minimum unobstructed space beneath the unit of 4 inches (102 mm). When specified for shipboard applications (see 6.2), provisions shall be made to mount the dispensers on a horizontal surface. The frame shall be provided with four drilled or threaded bosses or retaining nuts for this purpose. Mounting bolt sizes shall be 3/8 inch (9.5 mm) minimum and four symmetrically spaced mounting holes shall be provided. The threaded boss or retaining nut shall provide a thread engagement not less than the bolt diameter, plus one thread. The dispenser shall be mounted to a stainless steel dresser top by means of a 4-inch (102 mm) long, by 1-inch (25 mm) minimum diameter type 300 series stainless steel solid round stock legs. Legs shall have integral studs for mounting to the dispenser and to the stainless steel dresser top.

3.8.1 Base assembly. The base assembly shall be designed and constructed to house the refrigeration system and to support the container bowls, dispensing faucets, and drip traps. The base shall be equipped with removable panels for inspection and maintenance. They shall be sized for the purpose intended, and constructed so one person can handle them. At least two opposite panels shall be open-grid or perforated construction to provide an adequate source of cooling air for the refrigeration condenser coils.

3.8.2 Refrigeration system. The refrigeration system shall be of the air-cooled, hermetically-sealed type consisting essentially of a compressor condenser unit, a drier-strainer, a corrosion-resistant evaporator cooling dome, plate or coil, a capillary tube or expansion valve, and an automatic on-off cycling thermostat. The condensers shall be furnished with cooling fans to provide a positive, forced-circulation flow of air through the coils. The system shall have sufficient capacity to meet the performance requirements of 3.6 at the specified temperatures. In no case, however, shall the condensing unit manufacturer's standard commercial horsepower and capacity ratings be less than the applicable ratings specified in table I. The refrigeration system on each dispenser shall be completely dehydrated and fully charged prior to shipment. A low pressure sensing switch shall be provided in the event that loss of refrigerant charge becomes sufficiently low and shut off the unit automatically. The low pressure sensing switch shall be of the manual reset type.

3.8.3 Agitation system. Each bowl or compartment shall be equipped with an individual agitation system. Agitation systems for type I dispensers shall consist of a rotating impeller in the base of the bowl plus a spray tube for continuous, pumped, overhead, recirculation and aeration of the beverage. Agitation systems for type II dispensers shall consist of a rotating impeller or disk or shall be of the immersed, revolving-paddle type, at the option of the supplier. Pumps for spray-type systems shall be driven by an electromagnetic coupling to eliminate the need for direct connection to the driving motor

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through the bottom of the bowl. The motor for operating spray pumps and mixing paddles shall be rated at not less than 1/70 horsepower (0.01 kW). The mixing systems shall impart a constant agitating motion to the stored beverage to prevent settlement of beverage constituents and to assist in maintaining the required beverage temperature at the inlet to the dispensing port.

3.8.4 Bowls. Bowls and covers shall be fabricated of a rigid, impact-resistant, colorless, transparent, acrylic or polycarbonate plastic material. The thickness of the bowls shall be not less than 3/32 inch (2.4 mm). The bowls shall have sufficient net volume, exclusive of space occupied by the cooling dome or plate and mixing system components, to meet the capacity requirements applicable to the size specified. Bowls shall be furnished and installed with gaskets and seals required to provide leak-tight containers. Bowls shall be impact-resistant to the extent that, if pushed from a 36-inch (914 mm) counter to a concrete floor, the bowl will not crack or become otherwise damaged. Bowls which are required to be removed for cleaning shall not crack or become otherwise damaged when tested as specified (see 4.5.2.5).

3.8.5 Dispensing faucets. Each bowl on style A units and each bowl or compartment on style B and style C units shall be equipped with at least one dispensing faucet. Dispensing faucets shall be designed to be opened by a push-type lever or bale and shall be self-closing. The operating lever or bale and other parts of the faucet shall be stainless steel, plastic, or a combination of both. Faucets shall be designed to permit thorough cleaning of all fluid passages and parts exposed to the beverage.

3.8.6 Drip tray. Each dispenser shall be equipped with a drip tray having a removable perforated or slotted cover.

3.8.7 Water fill valve. When specified for size 7 and larger (see 6.2), the dispensers shall be equipped with a manual, inlet fill valve. When such fill valves are furnished, the dispenser shall be protected, in accordance with NSF International Standard 18, against back siphoning or back flow by an air gap of not less than twice the diameter of the water supply inlet and in no case less than 1 inch (25 mm); by an approved type vacuum breaker; or by such other method as is approved by NSF International.

3.8.8 Stainless steel. Stainless steel sheet, when used for components such as base panels and drip trays, shall be type 302 or 304 of ASTM A 167, except that stainless steel side and rear panels not exposed to beverage spills may be type 430 of ASTM A 176.

3.8.9 Plastics. Plastic materials used for bowls, faucets, mixing system components, and any other parts in contact with the beverage shall have been approved by the NSF International for potable water applications.

3.8.10 Human factors criteria. When shipboard use is specified (see 3.14 and 6.2), human factors engineering criteria, principles, and practices, as defined in MIL-STD-1472, shall be used in the design of the dispensers. Maintenance and operational activities shall permit safe and efficient performance by the 5th percentile female to the 95th percentile male as defined in sections 5.6 and 5.9 of MIL-STD-1472. Sufficient clearance or free area required around an item shall permit an individual with applicable body dimensions and physical capabilities to safely operate, maintain, remove, or

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replace that item. When establishing accessibility requirements, both physical and visual access must be provided along with access for the use of any tools, test equipment, or replacement parts needed. While inspecting for defects and performing tests (see section 4), the equipment shall adhere to the human factors engineering considerations listed herein.

3.9 Electrical requirements. The dispensers shall be designed for operation on a nominal 115-volt, single-phase, 60-hertz alternating current or a nominal 220-volt, single-phase, 50-hertz alternating current in accordance with the specified electrical rating (see 1.2). Each dispenser shall be equipped with a flexible power supply cord, a thermostatic control, and required switches.

3.9.1 Power supply cord. The power supply cord shall include an equipment grounding conductor and an attachment plug cap of the grounding type. The grounding conductor shall be green and shall be secured to the base assembly by a screw or equivalent means not likely to be removed during servicing operations not involving the cord. The power supply cord shall be provided with means to prevent strain on the cord being transmitted to terminals, splices, or internal wirings. The edges of the entry hole for the cord shall be smooth and well rounded. The length of the power supply cord external to the base enclosure shall be not less than 5 feet (152 centimeters). The plugs shall conform to NEMA WD 1, figure 5-15 for 115/1/60 dispensers and, unless otherwise specified (see 6.2), figure 6-15 for 220/1/50 dispensers.

3.9.2 Thermostatic control. Each dispenser shall be equipped with a thermostatic control to automatically cycle the refrigeration system to maintain the beverage temperature specified herein. The nominal differential between the cut-in and cut-out points shall be not less than four nor more than six degrees. The control shall be calibrated and preset prior to shipment of the dispenser. A tolerance of $\pm 1.5^{\circ}\text{F}$ (0.8°C) will be allowed at either cut-in or cut-out factory settings provided the beverage is maintained within the temperature limits specified in 3.7.

3.9.3 Switches. Style A dispensers shall be equipped with at least one on-off switch to control the power supply to the dispenser. Unless otherwise specified (see 6.2), style B and style C units shall be equipped with an independent on-off switch for the mixing system in each bowl or compartment plus a main power supply or compressor motor switch.

3.10 Identification marking. Each dispenser shall be marked with the following information in accordance with UL 471:

- a. Manufacturer's name or trademark
- b. Manufacturer's model number or equivalent identification
- c. Electrical rating
- d. Kind and amount of refrigerant in pounds or ounces (kilograms or grams)
- e. Factory test pressures for the high and low-pressure sides

3.10.1 Military marking. When specified (see 6.2), each dispenser shall be marked in accordance with MIL-STD-130 in addition to the marking required under 3.10.

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3.10.2 Data name plates. Dispensers shall be provided with data name plates readily visible to the operator during normal operating use and so as to not adversely affect the life and utility of the unit. For shipboard use, plates shall be made of minimum 20 gauge (0.89 mm) corrosion-resisting metal and attached to the front of the unit by rivets, screws or welding in such a manner as to meet the applicable NSF International requirements and UL 471 for this equipment. The plate shall contain the following information which shall be stamped, engraved or applied by photosensitive means:

- a. National stock number
- b. Procurement instrument identification number
- c. Specification data
- d. Manufacturer's name, address and telephone number
- e. Manufacturer's model number
- f. Government approved manual number (shipboard)

3.10.3 Instruction plate. For shipboard use, instruction plates shall be made of corrosion-resistant metal and shall be attached to the front of the dispenser. The instruction plate shall bear instructions for start up, operation, shutdown and preventive maintenance.

3.11 Fungus resistance. When specified (see 6.2), electrical components and circuit elements, including terminal and circuit connections, shall be coated with varnish conforming to MIL-V-173, except that:

- a. Components and elements inherently inert to fungi or in hermetically sealed enclosures need not be coated
- b. Current-carrying contact surfaces, such as relay contact points, shall not be coated

Surfaces to be treated shall be cleaned to insure adherence of the varnish. The varnish shall be applied by wet-spraying, brushing, dipping, or a combination thereof to a dry film thickness of at least 1 mil (0.025 mm).

3.12 Technical publications. Technical publications (manuals) that provide dispenser operation, maintenance, servicing, troubleshooting and spare parts shall be furnished in accordance with the applicable provisions of the contract (see 6.2.1).

3.13. Workmanship.

3.13.1 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.13.2 Bolted connections. Bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

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3.14 Naval shipboard installation. For Naval shipboard installation (see 6.2), the beverage dispenser shall conform to the additional requirements as follows:

3.14.1 Electromagnetic compatibility. The units shall be designed and equipped for electromagnetic compatibility in accordance with the requirements of MIL-STD-461, class 4 for surface ships and class A5 for submarines. The equipment shall meet the emission and susceptibility requirements for CE01, CE03 and RE02 (see 4.5.2.6).

3.14.2 Inclined operation. Beverage dispensers shall operate satisfactorily when inclined at an angle of 15 degrees each side of the vertical in each of two vertical planes at right angles to each other, with no spillage of fluid or product when tested as specified in 4.5.2.7.

3.14.3 Environmental suitability. Beverage dispensers shall be capable of withstanding ship's vibration and motions from the horizontal plane up to 45 degrees. Controls, switches, moving parts and electrical circuits shall operate under shipboard conditions without malfunction, binding, excessive looseness, or damage when tested as specified in 4.5.2.8.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Standards compliance. The contractor shall make available to the contracting officer or his authorized representative evidence of compliance with the applicable standard(s) cited in 3.3. The Government reserves the right to examine and test all dispensers to determine the validity of the certification.

4.1.2.1 UL certification. Acceptable evidence of meeting the applicable requirements of UL 471 shall either be: (1) The UL-approved listing and marking authorized under the UL, or (2) a certified test report from a nationally recognized independent testing laboratory, selected by the supplier

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and approved by the contracting officer, stating that a beverage dispenser of the same model being furnished under this specification has been examined and tested and meets the requirements of UL 471 (see 6.2.1).

4.1.2.2 NSF International certification. Acceptable evidence of meeting the requirements of NSF International Standard 18 shall be (a), (b) or (c) as follows:

- a. Display of the NSF International seal on the finished dispensers and a listing of the model being furnished in the current edition of the NSF International Listing of Food Service Equipment. This evidence shall be made available prior to approval of the first article or, if first article inspection is not required, prior to the first shipment.
- b. A certification for the dispensers issued by NSF International under their special one-time evaluation/certification service for equipment being furnished under a Government contract. This certification shall be submitted prior to approval of the first article, or, if first article inspection is not required, prior to the first shipment (see 6.3).
- c. A certified test report from a recognized independent testing laboratory acceptable to the medical department of the service for which the dispensers are being acquisitioned, indicating that a beverage dispenser of the same model being furnished under this specification has been examined and tested and meets the requirements of NSF International Standard 18. This evidence shall be submitted prior to approval of the first article, or, if first article inspection is not required, prior to production of the dispensers to be furnished to the Government (see 6.3).

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2.1)
- b. Quality conformance inspection (see 4.2.2)

4.2.1 First article inspection. The first article inspection shall be performed on one complete dispenser when a first article is required (see 3.4 and 6.3). This inspection shall include the examination of 4.4 and the tests of 4.5.2. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.4, the tests of 4.5.1, and the packaging inspection of 4.6. This inspection shall be performed on the samples selected in accordance with 4.3.

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4.3 Sampling. Sampling and inspection procedures shall be in accordance with MIL-STD-105. All dispensers of the same type, size, style, and electrical rating offered for delivery at one time shall be considered a lot for the purpose of inspection. Guidance for inspection level and Acceptable Quality Level (AQL) is provided in section 6.5. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for a complete reinspection. Resubmitted lots shall be reinspected using tightened inspection. If the rejected lot was screened, reinspection shall be limited to the defect causing rejection. If the lot was reprocessed, reinspection shall be performed for all defects. Rejected lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

4.4 Examination. Each dispenser selected shall be examined for compliance with the requirements specified in section 3 of this specification. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements shall constitute a defect.

4.5 Tests. Prior to performance of the tests specified herein, the dispensers to be tested shall be operated for a period of time deemed necessary by the manufacturer for proper run-in and adjustment of the units. All tests shall be conducted using the nominal voltage and frequency applicable to the specified electrical rating. When specified (see 6.2), water shall be used in the test; otherwise, the beverages used for the tests shall be as follows:

- a. Type I dispensers: Either a commercially available, sweetened, non-carbonated, syrup drink or, in lieu thereof, an aqueous sucrose solution in the proportion of 0.38 pounds (172 grams) of granulated sugar per 2.2 pounds (1000 grams) of water.
- b. Type II dispensers: Fresh orange or grapefruit juice as prepared when a commercial, electric-motor-operated extractor is used and the strainer furnished therewith, or orange or grapefruit juice prepared from a frozen concentrate which meets the applicable standards of the U.S. Department of Agriculture and is mixed in the proportions recommended by the concentrate producer.

4.5.1 Operation test. Each selected dispenser, after being fully charged and serviced, shall be operated to verify the functional adequacy of the unit. Units furnished for 50-hertz operation shall be tested using 50-Hertz current. Each unit shall be filled to rated capacity with the applicable test beverage at a minimum initial temperature of 50oF (10oC). The ambient temperature shall be not less than 70oF (21oC). The unit shall be operated until the temperature of the beverage, as measured in the bowl or in a sample drawn from the faucet, reaches 40oF (4.4oC). The total volume of samples drawn during the test shall not exceed 10 percent of the rated capacity of the bowl. Style B and style C units shall be operated until the temperature of the beverage in both bowls reaches 40oF (4.4oC). Failure of any unit to reduce and to maintain the temperature at 40oF (4.4oC), and failure to satisfactorily agitate and dispense the beverage, shall be cause for rejection of the dispenser.

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4.5.2 First article tests.

4.5.2.1 Performance test. The dispenser shall be filled to rated capacity with the applicable test beverage. The temperature of the test beverage shall be at least 72oF (22.2oC) at the start of the test. The dispenser shall be operated in an ambient temperature of 90oF +/-5oF (32.2oC +/-3oC), until the beverage, as dispensed from the faucet(s), attains a temperature stabilized in the range of 33.5 to 40oF (1 to 4.4oC). The test run shall then continue for at least 2 hours with sample portions being drawn and checked for temperature at intervals not exceeding 5 minutes, except that during the last 15 minutes a sample shall be drawn and checked each minute. The samples shall be drawn in 12-fluid-ounce (355 milliliter) paper cups and the temperature checked immediately to minimize the environmental effect of the 90oF (32.2oC) ambient temperature. The temperature sensing device may be chilled between readings in a 32oF (0oC) ice-water bath to offset the time lag between taking the sample and reading the temperature. On style B units each bowl or compartment shall be checked alternately at the specified intervals during the test run. Failure of the dispenser to maintain the beverage temperature within the specified 33.5oF to 40oF (1 to 4.4oC) limits shall constitute failure of the test.

4.5.2.2 Pull-down test. The first article sample shall be filled to rated capacity with the applicable test beverage. The temperature of the beverage shall be at 72oF +/-1oF (22.2oC +/-0.5oC), and ambient temperature shall be 72oF +/-2oF (22.2oC +/-1oC). The dispenser shall be operated until the temperature of the beverage, as measured in the bowl or in a sample drawn from the faucet, reaches 40oF (4.4oC). The total volume of samples drawn during the test shall not exceed 10 percent of the rated capacity of the bowl. On style B and style C units, the time for both bowls to reach the required 40oF (4.4oC) temperature shall be recorded. Failure of the units to comply with the specified temperature pull-down time shall constitute failure of the test.

4.5.2.3 Maximum ambient temperature. The first article sample shall be filled to rated capacity with the applicable test beverage. The beverage and dispenser shall be stabilized at, and operated in, an ambient temperature of 100oF (37.8oC), with at least 80 percent relative humidity. The test run shall continue until the unit is under control of the on-off cycling thermostat for a minimum of 1 hour. Any evidence of continuous abnormal overload on the compressor motor during the test run, as indicated by excessive unit heating or frequent shutdowns caused by the motor overload protective device, shall constitute failure of the test.

4.5.2.4 Impact test. The plastic bowl on the first article sample shall be tested to determine compliance with the impact-resistance requirement of 3.8.4. The bowl shall be dropped from a height of 36 inches (914 mm) onto a concrete surface at least three times to cover three different points of impact: (1) the bottom of the bowl which normally rests on the base, (2) the top rim which normally supports the cover, and (3) any of the four corners. Failure to withstand any impact without cracking or other damage shall be cause for rejection of the unit.

4.5.2.5 Bowl removal test. After the dispenser has successfully passed the operational, pull-down, maximum ambient temperature, and impact tests, the bowl of the same dispenser shall be removed and replaced in accordance with the instruction manual to be furnished with the dispenser. Unless otherwise

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specified (see 6.2), this procedure shall be repeated with the same bowl 25 times to determine compliance with the bowl removal requirements of 3.8.4. Any nonconformance shall constitute failure of this test.

4.5.2.6 Electromagnetic interference test. The unit shall be tested by the contractor in accordance with test methods CE01, CE03, and RE02 of MIL-STD-462. The contractor shall furnish written certification that the equipment meets the requirements of MIL-STD-461 (see 6.2.1). Nonconformance with the requirements specified in 3.14.1 shall constitute failure of the test.

4.5.2.7 Inclined operational test. Position the beverage dispenser with the base set at an angle of 15 degrees, then operate the beverage dispenser for 30 seconds at each side of the vertical in each of two vertical planes at right angles to each other. At each of these positions observe for conformance with specified requirements in 3.14.2. For the test, the beverage dispenser shall be filled to rated capacity with water.

4.5.2.8 Shipboard environmental test. The beverage dispenser under normal operating conditions, shall be tested in accordance with MIL-STD-167/1, Type I equipment. The beverage dispenser shall be secured to the test machine in the same manner that it will be secured on shipboard (see 3.8). Failure of the beverage dispenser to perform its function during and after testing, or to meet the requirements of 3.14.3, shall constitute failure of this test.

4.6 Packaging inspection. An examination shall be made to determine compliance with the requirements of section 5. The sample unit shall be one unit prepared for shipment. Sampling shall be in accordance with MIL-STD-105. Guidance for inspection level and AQL is provided in section 6.6.

5. PREPARATION FOR DELIVERY

5.1 Preservation. Preservation shall be level A or commercial as specified (see 6.2).

5.1.1 Level A. Dispensers shall be packaged in accordance with method III of MIL-P-116 using a fiberboard container conforming to PPP-B-636, weather-resistant class. The bowl assemblies (with covers) and the chassis may be packed separately to facilitate handling or to comply with size and weight limitations of PPP-B-636. Contents shall be cushioned to prevent movement within the box.

5.1.2 Commercial. Dispensers shall be preserved and packaged in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or commercial as specified (see 6.2).

5.2.1 Levels A and B. Packing shall be in accordance with MIL-STD-2073-1A. Containers shall be selected from table VII of appendix C for the appropriate level. Only closed containers shall be used.

5.2.2 Commercial. Packing shall be in accordance with ASTM D 3951.

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5.3 Palletization. Material shall be palletized in accordance with MIL-STD-147 when the following criteria are met:

- a. Load to consist of four or more unskidded containers; and,
- b. Load shall utilize a minimum of 80 percent of the pallet base.

5.4 Marking. Marking shall be in accordance with MIL-STD-129.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The beverage dispensers covered by this specification are intended to mix, cool, and dispense noncarbonated beverages such as pulpy juices, frozen concentrates, and syrup drinks in mess halls, cafeterias, post exchanges, and similar military facilities.

6.2 Ordering data. Purchaser should select the preferred options permitted herein and include the following information in acquisition documents:

- a. Title, number, and date of this specification
- b. Type, style, size, and electrical rating required (see 1.2)
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- d. When faucets for style A, size 13 units shall be other than as specified (see 3.3)
- e. When a first article inspection is required (see 3.4)
- f. When holes for shipboard mounting bolts are required (see 3.8)
- g. When a water fill valve is required for size 7 and over (see 3.8.7)
- h. When dispensers are for shipboard use, and any additional requirements (see 3.8.10 and 3.14)
- i. When the electrical plug for 220/1/50 dispensers shall be other than NEMA figure 6-15 (see 3.9.1)
- j. When required switches for style B units shall be other than as specified (see 3.9.3)
- k. When military marking in accordance with MIL-STD-130 is required and the information to be marked (see 3.10.1)
- l. When fungus treatment is required (see 3.11)
- m. When water is used in the test (see 4.5)
- n. Number of repetitions required if other than specified (see 4.5.2.5)
- o. Level of preservation and packing required (see 5.1 and 5.2)

6.2.1 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of DoD Federal Acquisition Regulations (FAR) Supplement, Part 27, Sub-Part 227.405-70 are invoked and the DD Form 1423 is not used, the data should be delivered by the contractor in accordance with the contract or purchase order requirements.

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6.3 First article. When a first article inspection is required, the item will be tested and should be a preproduction sample selected from the first production run, or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one complete dispenser unit. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.4 Part or Identifying Numbers (PINs). The specification number, type, style, size, and electrical rating are combined to form PINs for noncarbonated beverage dispensers covered by this document (see 1.2). PINs for the dispensers acquired to this specification are created as follows:

	M	2841	X	XXX	XXX
	*	*	*	*	*
Inch-Pound document	-----*	*	*	*	*
Specification number	-----*	*	*	*	*
Type designator	-----*		*	*	*
Style and size designator	-----*			*	*
Electrical rating designator	-----*				*

6.4.1 Type, style, size and electrical rating. The type, style, size and electrical rating of beverage dispensers are identified by designators as shown in table II.

TABLE II. Designator to type, style, size and electrical rating.

*	Option		*	Designator	
*	Type		*		

*	I		*	1	
*	II		*	2	

*	Style		*	Size	

*	A	*	4	*	A04
*	A	*	7	*	A07
*	A	*	13	*	A13
*	B	*	7	*	B07
*	B	*	11	*	B11

*	Electrical rating		*		

*	115/1/60		*	115	
*	220/1/50		*	220	

6.4.2 Part numbers. The PIN is for Government purposes and does not constitute a requirement for the contractor.

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6.4.3 Example of PIN. Requirements: Type I, style B, size 11, 115 volt, single-phase, 60-hertz.

PIN designation: ----- M2841-1-B11-115

6.5 Sampling procedures. Recommended inspection is level II and AQL is 2.5 defects per 100 units (see 4.3).

6.6 Packaging inspection. Recommended inspection level is S-2 and AQL is 4.0 defects per 100 units (see 4.6).

6.7 Classification cross reference. Classifications used in this specification (see 1.2) are identical to those found in the superseded military specification, MIL-D-82035C.

6.8 Supersession data. This specification replaces military specification MIL-D-82035C dated 23 March 1984.

6.9 Subject term (key word) listing.

Milk allocator
Noncarbonated liquid distributor

MILITARY INTERESTS:

Custodians

Army - GL
Navy - YD1
Air Force - 99

Review Activities

Army - MD
Navy - MC, MS, SA
Air Force - 50, 84
DLA - GS

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS
VA - OSS

PREPARING ACTIVITY

Navy - YD1

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